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ABSTRACT

Eleven selected language programs made available between 1967 and 1975 are described. The introduction explores the theoretical perspectives at work during the past 15 years and discusses the factors which should influence language program choice, how children acquire language skills, and techniques for evaluating the success of language intervention. The booklet is divided into programs for mild handicaps (including the Peabody Language Development Program), moderate handicaps (including the Distar Language Program), and severe handicaps (including Systematic Language Instruction: the Illinois Program), with accompanying explanations regarding the nature of language impairments in each of these groups. (BD)

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LANGUAGE INTERVENTION

A Sampling of Selected Programs for Severe, Moderate, and Mild Impairments—1969-1975

by
Doris Bradley

The Technical Assistance Development System
A Division of the Frank Porter Graham Child
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Chapel Hill

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FOREWORD

In a field that changes as rapidly as language programming has in the past fifteen years, it is often useful to stop periodically and consider the progress that has been made while keeping track of the direction newer ventures are taking. This tact allows one to gain a historical perspective on the "new," and, at the same time, it prevents what is useful from the past from being overlooked. It was with this belief in mind that we decided to publish this booklet. The language programs described herein were first made available between 1967 and 1975.

The usefulness of this document, of course, extends beyond mere historical interest. The format of the booklet and the manner in which the materials are presented make LANGUAGE INTERVENTION particularly useful for persons relatively new to the selection and use of language materials. The division of the contents into programs for mild, moderate, and severe handicaps--with accompanying explanations regarding the nature of language impairments in each of these groups--is an especially useful feature of this booklet. The introduction, which explores the theoretical perspectives at work during the period from the late 60's to the early 70's, is an insightful discussion of "how children learn language."

Since 1975, of course, the programs available for language development have multiplied and theories of how children learn language have expanded. In the not too distant future, we hope to deal with some of the emerging trends in language education and remediation in a publication on more recently developed programs.

Until then, we trust that the excellent guidelines offered herein will serve First Chance programs as well as programs run by state education agencies. Many of the language systems presented here, of course, are still very much in use and are still, in some instances, the best programs in their genres. We hope through this booklet that we have removed some of the complexity involved in working in this very difficult but very important area.

Kenn Goin and Linda Gilkerson

INTRODUCTION

A discussion of: (1) the factors which should influence your choice of a program, (2) the professional views of how children acquire language skills, and (3) techniques for evaluating the success of language intervention

The number of preschool children with delayed or impaired development of language skills is difficult to estimate. Because procedures for determining the prevalence of language problems vary, data are inconsistent. However, the Bureau of Education for the Handicapped (BEH) has estimated that one million preschoolers are in need of special programs, and it is safe to say that language delay or language impairment is present in many of these children who have other special needs: especially children with mental retardation and physical handicaps such as cerebral palsy or other handicapping conditions such as hearing loss, hyperactivity, minimal brain dysfunction, or emotional disturbance. Many children, of course, have speech and language problems in the absence of other handicapping conditions. There is clearly a need to identify and describe some of the language intervention systems available for providing treatment to children with language problems.

The material in this booklet, which summarizes ten of the systems that are currently available, should provide a basis for choosing a system of language intervention appropriate to the needs of a group of children. Several factors should influence decisions regarding the choice of language programs. First, the background and training of the person who will be using the language program must be considered. The individual who has extensive knowledge of language development in "normal" children will likely choose a program with great flexibility so that it can be adapted to each

child and the guidelines of normal development can still be followed. The less knowledgeable individual may very well choose a system which outlines the stages of development, provides procedures for determining present functioning levels, and describes in specific terms the activities to be followed. All programs should explain the degree of progress which logically can be expected from children with whom they are used.

A second factor that may influence the choice of a language intervention program is the severity of the language disorder. The child who is not using any words needs a different program than the child who uses single words but no word combinations.

A third factor concerns the amount of structure provided by the program and the amount of structure preferred by the language clinician. Generally speaking, the more severe the language impairment, the more structured the intervention system should be. As the child gains control of language skills, the structure of the program can be relaxed. The decision should be based on the needs of the children, but sometimes staff considerations become part of it, since some individuals cannot work with programs that require a very tight structure.

While there are other factors of importance, such as budget, space availability, and the ability of staff members to adapt and develop their own materials, the most important factor of all is probably the basic beliefs with regard to language acquisition of

the individual user of a particular program. Several ways of viewing language acquisition include the use of models. For example, the developmental model relies on normative information because most children by a certain age are able to do certain things with language. The developmental landmarks are well known for certain skills. For example, it is agreed by most authorities on language development that children should be using single words by twelve months of age. It is also agreed that children should be using two-word combinations by two years of age and at least subject, verb, and object constructions by three years of age. These are general developmental guidelines. An individual following the normal developmental model will find other information available providing more specific guidelines. This material is readily available in books on normal language development such as the one published by Patricia McElroy (1972).

A second way of viewing language acquisition is the medical model. Here, one searches for the etiology, or cause, of slow language development. Once it is determined, treatment can hopefully be provided which will enable the child to progress with language acquisition normally. There are few conditions for which this is possible at the present time. The classic example is PKU (phenylketonuria). This medical problem causes the infant's body to be unable to synthesize proteins properly and results in brain

damage and severe mental retardation. If treated by proper diet, it is possible for the child to develop normally and for all language skills to develop according to the normal pattern. Another medical problem that can be diagnosed during infancy is Down's Syndrome which is associated with mental retardation and poor development of language skills. No medical treatment is available that will allow the Down's Syndrome child to develop normally, however, and we are still dependent upon language intervention systems to assist him in acquiring as many language skills as possible. While the medical model has not been as useful to us as we had hoped, its importance is still primary in that the search for treatment for organic conditions in order to avoid language problems should continue.

A third model views language acquisition as the result of an innate capacity of the human race. The hypothesis is that because human beings are endowed with a biological capacity for language development which emerges as the organism grows, intervention is unnecessary. The provision of an environment that is stimulating to the organism is all that is required for the acquisition of language. When this is the belief of individuals responsible for the language skills of young children, the provision of environmental stimuli, with very little structure, is the usual approach. While this obviously works very well for a large portion of the population who learn language without any formal instruction, it

seldom seems adequate for the child handicapped by an inability to acquire language skills in a normal way. Nonetheless, there is evidence to support this view, and it is well discussed by Phillip Dale (1972) in his book on language. Some other evidence includes: the existence of language universals as described by Greenberg (1963), the similarity of early child language in the various language systems of the world, and the appearance of relatively abstract features of language as the earliest stage of syntactic development.

In the last model of language acquisition, which is supported by the author of this booklet, language is viewed as learned behavior. As explained by Staats (1968), there is considerable support in the literature for the theses that language is a learned tool and that certain environmental controls precipitate the learning. When this model is used, intervention procedures include a combination of stimulus-response techniques, classical and instrumental conditioning, and the response hierarchies that result from these techniques. William Bricker (1972) writes, "if a child does not learn from natural contingencies of the environment, [we must] establish a control environment so that he can learn." The more severe the language delay or impairment at the time that intervention is begun, the more the environmental conditions will have to be modified and controlled so that the child can begin to learn. There are numerous factors to be considered in controlling conditions,

such as distance from the child's face in presenting stimuli, ability of the child to attend to stimuli, and the intensity and nature of the stimuli provided.

Evaluation. The emphasis on accountability that is part of every program in the 1970's makes it necessary to determine the effectiveness of language intervention programs. This requires that some base line of language usage be obtained prior to intervention and that the same measure be taken after a period of intervention. The techniques available for accomplishing this task are numerous. The knowledge and skills of the individuals responsible for remediating the language problems will determine the one to choose. Several will be presented here as possibilities, but those individuals using language intervention systems may find others more appropriate for their uses. Only a few of the language programs available provide for pre- and post intervention testing. Therefore, it is important that some consistent measurement tools be obtained.

The simplest pre/post measure for preschool age children is the mean length of response (MLR). It is probably the oldest technique available. Numerous discussions of this technique may be found in the literature. It was described by Dorothea McCarthy (1930) in *DIAGNOSTIC TECHNIQUES IN SPEECH PATHOLOGY*, edited by Johnson, Darley, and Spriestersbach (1963). It has been modified through the years by a number of people, including Brown who developed

guidelines for determining a similar, but more sensitive count: the mean length of utterance (MLU). MLU represents the average number of morphemes plus utterance. Brown maintains that this is the most effective, single measure of language acquisition available until a child reaches a level at which he is using six or seven words per utterance. After this level, other factors involving language skills influence mean length of utterance so that it becomes a less effective measure. Brown's technique for calculating MLU is very simple. The child is presented with stimuli which may be pictures, objects, or conversational-exchange attempts. The child's speech is recorded and a morpheme count is made on the first 100 utterances satisfying Brown's guidelines. The MLU or average number of morphemes is calculated by dividing the number of morphemes used by the number of utterances. The fourteen morphemes identified by Brown include: 1) present progressive (e.g., sitting); 2) in--preposition form; 3) on--preposition form; 4) plural--regular by adding s or z; 5) past irregular verb tense; 6) possessive--add 's; 7) uncontractible copula (e.g., "This is tall." "There he is."); 8) articles; 9) past regular--add ed to verb; 10) third person regular; 11) third person irregular; 12) uncontractible auxiliary; 13) contractible copula (e.g., "He's happy."); 14) contractible auxiliary. The value of the morpheme count is that it indicates some of the errors being made by the child and provides more guidance in terms of intervention than the more simple word

count. Another procedure is the mean length complexity index developed by Lynn Miner (1969). It is to be used with children who have poorly developed grammatical structures.

A technique for analyzing language usage known as developmental sentence scoring (Lee, 1974) deals with eight parameters of generative grammar and their developmental complexity. It is based on a sample of language obtained from the child and scored according to a pattern provided by Lee. Developmental age norms are available, and percentile scores are available by age level.

Two tests are available now that provide a language analysis based on normative data. One is the test of language comprehension and the other is the test of elicited language, both by Carrow (1972). These two tests used together provide measures of comprehension and expression skills. The scoring procedures for the elicited language are somewhat complex and time-consuming but do provide a strong basis for developing a language intervention procedure.

There are several language intervention systems that provide for their own pre- and posttest measure of intervention effectiveness. These include the Bricker program (1972), the programmed conditioning for language (Gray and Ryan, 1975), and GOAL (Karnes, 1972) (which uses the ITPA as a pre- and postmeasure).

While measuring language skills prior to the use of intervention strategies and again after specific periods of intervention is of primary importance, it is also useful to assess the language

skills of children not being seen for language intervention. This assessment makes it possible to compare the skill levels of normally progressing children and those of the children with whom you are working. Often, the comparison is helpful in assessing the effectiveness of the program. Fortunately, enough techniques are available now so that it is possible to choose a procedure, compatible with the skills of the language interventionist, for collecting reliable information to describe the effectiveness of the programs. There is no reason to postpone the collection of information until a staff is trained to use sophisticated techniques. It is possible to begin with simple procedures and apply more sophisticated ones after staff members are versed in their use. While problems continue to be present in techniques for obtaining language samples from young children, it is probably realistic at this point in time to obtain both the pre- and the postlanguage samples using the same stimuli and exactly the same "eliciting" techniques. Even though there are problems with the collection and analysis of language samples, using the best techniques available is still worthwhile.

The availability of models of language acquisition and various techniques for obtaining pre- and postintervention information are important in selecting and using any language intervention program. It is also important, however, to determine the severity of the language problem before choosing a technique. The programs described in this manual are grouped according to the severity of the language

impairment. They could have been grouped in several other ways. These ways include groupings according to: the theoretical model (of language acquisition) on which they are based, the type of instructional strategy they employ, or the etiology of associated problems (such as mental retardation or emotional disturbance). The decision to group them in terms of the severity of language impairment was a logical one in view of the population of children to be served.

PART I: LANGUAGE INTERVENTION SYSTEMS FOR SEVERE IMPAIRMENT

A discussion of three programs: Language Acquisition for the Severely Retarded (Kent), Early Language Intervention (Bricker), and Systematic Language Instruction: The Illinois Program (Tawney and Hipsher)

Children who reach three years of chronological age and are not using any single words are generally considered to have a severe language impairment. Typically, these children also have poor attending behavior for both visual and auditory stimuli. Their attending behavior is often poor because they attend momentarily to every stimuli in the environment instead of attending to one stimulus long enough to learn from it. The more severe the language impairment, the more structured the language intervention system needs to be to enable the child to begin to learn language skills. Also, more trials may be required for learning.

LANGUAGE ACQUISITION PROGRAM FOR THE SEVERELY RETARDED by
Louise R. Kent.¹ This program has an initial inventory that consists of a randomized sequence of each behavior that is to be learned. The person using the program should determine the behaviors that the child approximates in any setting and then proceed with the teaching steps to develop that particular behavior. The final inventory provided is a measure of retention or a measure of the child's ability to generalize and use the skills learned in other teaching steps. The retention inventory is always presented after ten training sessions on any part of the program. Criterion is 90 percent for all parts of the program. If the child does not respond

¹The title has been changed to: LANGUAGE ACQUISITION PROGRAM FOR THE RETARDED OR MULTIPLY IMPAIRED.

correctly on 90 percent of the trials in the inventory, criterion is failed and retraining steps must be presented.

The trials of each training session are recorded as "correct response," "approximation," "incorrect response," or "no response." The score sheets for recording the data provide information to the language clinician regarding the overall success or failure of a training session.

Throughout the program, positive reinforcement--in the form of consumable edibles, tokens, or verbal reinforcement--is used for accurate responses. Reinforcement should reflect the child's level of responsiveness in the training session. The goal should always be to increase the child's ability to respond accurately with only the verbal and social reinforcement being provided.

The Kent program is one of the most effective systems available for establishing attending behavior. Nothing is more basic to learning than good attending behavior. The child who cannot attend to both visual and auditory stimuli finds it difficult to acquire language skills. Consequently, the elimination of interfering behaviors and the establishment of behavior that will facilitate language learning is the focus in the first phase of the Kent system. The program attempts to develop the child's ability to look at objects, to look at the face of the clinician, and to do specific motor imitations. Only after these abilities are established, does the clinician proceed to develop basic receptive skills and then expressive language skills.

The curriculum is separated into receptive language and expressive language. The child may begin the receptive phase as soon as he has some basic attending behaviors. The clinician then alternates between teaching receptive and expressive language skills. Typically, the receptive skills are one or two levels or steps above the expressive skills. Guidelines are provided for teaching each part of the program and for establishing each receptive and expressive language skill included in the program. The first phase of the receptive section begins with body parts, objects, concealed objects, and room parts. It is then expanded to include performance of actions (named) related to body parts, performance of actions (named) related to objects, finding concealed objects in two boxes, and performance of actions (named) related to room parts. The second phase involves discriminating possession, placing objects in prepositional relationships, giving related object pairs, finding concealed object pairs, and sorting colors. The third phase includes verb-plus-adverbial-place commands, vocabulary expansion for nouns, finding objects named, sorting big and little objects, and pointing to colors named. The fourth phase of receptive language involves verb-plus-noun-plus-adverbial-place commands, verb-plus-noun commands using new nouns, pointing to relatively sized objects, number concepts one through five, and color-plus-object identification. The final phase of the receptive language section involves vocabulary expansion for nouns,

finding objects named, pointing to relative sized objects, and more activities on number concepts one through five and on objects.

The first part of the expressive section concerns vocal imitation. The second part deals with the basic expressive phase of language development, including the naming of body parts, objects, concealed objects, and room parts. The third part, "Expressive Expansion Phase I," includes discriminating possession by naming whose body parts, naming objects in prepositional relationships to room parts, naming missing objects, naming room parts in prepositional relationships to objects, and manding actions using verb-noun combinations. The fourth part, "Expressive Expansion Phase II," concerns: naming colors, naming concealed colors, naming two objects, naming an object plus a room part in a prepositional relationship, and counting to five. The fifth part, "Expressive Expansion Phase III," includes: vocabulary expansion by naming nouns and by naming objects that are missing, manding actions which include "verb plus noun with new nouns," naming colors plus objects, and counting disappearing objects (one through five).

The curriculum guide of this program also includes information on sign language or total communication for individuals who do not respond using oral language. Verbal language is considered the ideal communication system for human beings. If the child does not respond to training procedures for verbal language, however, it is desirable to develop communication through the use of gestures, sign language, or total communication.

In some ways, the Kent program is well developed. It has been used extensively with severely retarded children. Its effectiveness is documented by results obtained at the Cold Water State Home and Training School in Coldwater, Michigan. It follows traditional views on language development and is directed toward the development of a functional language system for severely retarded children. It is an effective language program for establishing the attending behavior necessary for language comprehension and usage by any child who has a severe language impairment. Once language intervention is started with this program, it may be desirable to move to another program without following all of the procedures in the Kent program to completion. The procedures of this program are based on work with retarded children who have Down's Syndrome and with normal children who were observed to ascertain the developmental sequence appropriate to language acquisition. As a result, the techniques appear practical and efficient.

EARLY LANGUAGE INTERVENTION by William Bricker and Diane

Bricker.² William and Diane Bricker have developed a procedure for developing language skills in young retarded children. Their work is described in LANGUAGE OF THE MENTALLY RETARDED by R. L. Schiefelbusch (1972), and in various publications and reports from George Peabody

²The Bricker program has been revised. A more current reference is: Bricker, D.; Ruder, K; and Vincent, B. "An Intervention Strategy for Language Deficient Children." In N. Haring and R. A. Schiefelbusch (Eds.), TEACHING SPECIAL CHILDREN. New York: McGraw-Hill, 1976.

College. Their language intervention plan is based on language as a reinforced behavior. They insist on reinforcement being defined in operational terms as a class of subsequent events that are associated with an increase in the rate of probability of behavioral events. They suggest that reinforcement (defined operationally) is used frequently and has a specific function in language acquisition. They agree that language instructional systems that use arbitrary reinforcers as part of the intervention strategy should include a viable plan for natural reinforcers to take over and maintain the newly acquired language response pattern.

The Early Language Intervention Program is based on a sensory, motor, and language lattice which describes the sequential forms of behavior and prerequisite behaviors for each skill. Language development from the point of view of reflexive responses of the infant to intentional and preoperational behavior is described. There is a screening instrument to locate the child within the developmental lattice in various areas so that intervention techniques can be selected appropriately. The screening instrument is not given in one sitting; it generally requires many sessions with the child. The balance of the program is based on a "test and teach" system which is applicable to normally developing children up to the age of four years and has been used with retarded children as old as fifteen years of age who maintain behaviors within the defined developmental space of the screening instrument.

In the area of language, the learning lattice includes attending behavior, motor imitation, verbal imitation, functional classification of objects, and functional interrelationships. The uniqueness of the Bricker program appears to lie in its utilization of symbolic, functional relations among actions and objects as a basis for sequenced verbal behavior of children. They report children performing functional classification tasks prior to showing evidence of a receptive or expressive vocabulary. Their formal language training procedures are based on probes to determine the child's minimal behavior patterns in each area. Once this assessment procedure is complete, the target behaviors are developed through specific training procedures. It is necessary to determine the hearing level of each child prior to interventions in receptive or expressive language. Evaluation of the child's conceptual receptive vocabulary or comprehension of language is conducted in a way that reveals the selection strategies of the child and provides some guidance in terms of the appropriate strategies to be developed in employing receptive vocabulary. For some children, the use of a "motor mediator" to facilitate receptive and expressive vocabulary performance is desirable.

The program then proceeds to the use of verbal imitation in the development of an expressive vocabulary. Word-object relationships are developed and word production is utilized. Simple grammatical rules for actor action, action object, and actor-action-object

sequences are developed. The two-choice paradigm is employed for picture stimuli presentation and utilized in developing the basic grammatical rules.

The early language intervention techniques described by Bricker and Bricker (1972) offer great promise of being efficient and effective.

SYSTEMATIC LANGUAGE INSTRUCTION: THE ILLINOIS PROGRAM by J. S. Tawney and L. W. Hipsher (1972). This is another language program developed with mentally retarded children. It provides many small steps and allows a child to move systematically from touching to language behaviors. It is appropriate for use with children who have not yet developed naming behaviors and can be used to develop a language comprehension vocabulary.

There are two components to the system that are of interest. One is the approach to language through the acquisition of labels--the response forms for "yes and no" and then the question form. The second component concerns procedures for teaching each language skill. The program attempts to direct the language clinician's behavior very specifically in terms of preventing error responses, assisting or cueing a child toward correct responses, and providing immediate positive reinforcement for accurate responses. The authors discuss this procedure in terms of a controlled learning environment. Each lesson in the program has been analyzed for task performance and prerequisite behavior. Children are pretested

before instruction is provided and then posttested after the instruction has been given. It is suggested that lessons not be presented if a child fails to possess the necessary prerequisite behaviors.

The curriculum is highly structured, and the authors insist that clinicians follow the program precisely. It is an excellent program for developing specific responding behavior on the part of clinicians or teachers. It is difficult for some experienced clinicians to use because they feel it limits creativity. Although there may be some limitations in this area, it is obvious that children who need as much structure as is provided by THE ILLINOIS PROGRAM benefit from consistent behavior on the part of the language clinician. As a result, any loss of creativity is compensated for by the acquisition of language skills by the children using the program and their increased behavioral repertoires and participation in other instructional units. For these reasons, language clinicians are encouraged to use the program very systematically and very much as suggested by the authors.

Some clinicians have indicated that too much time is spent in touching behaviors as opposed to speaking behaviors. It should be remembered, however, that this program is appropriate for children with severe language impairment who may be doing little vocalizing at the time they begin the program. If a child has appropriate behaviors for receptive vocabulary and touching objects as named in the program, he can be started at a higher level. The

analysis of prerequisite skills for each session helps to determine a level at which a child can be placed in this program. Another possible shortcoming of the program is that the steps are very small, and many language-impaired children can move ahead faster by taking larger steps. Therefore, individuals using this program are encouraged to review the learning styles of the children placed in the program rather carefully. It is an excellent program if used with the appropriate population. It may be too time consuming, however, if used with inappropriate populations that are capable of moving ahead with instructional systems that have larger steps and movements toward skill acquisition.

PART II: LANGUAGE INTERVENTION SYSTEMS FOR MODERATE IMPAIRMENT

A discussion of three programs: Programmed Conditioning for Language (Gray and Ryan), Distar Language Program (Engelmann, Osborn, and Engelmann), and GOAL: Level 1, Language Development (Karnes)

Children who use some language but use patterns that are not typical of the language system, or standard English, need language intervention techniques that are systematic but not as highly structured as those needed for children with severe language impairment. The steps of these language programs continue to be small but not as small as those provided in programs for severely involved children. This means that more variables might be introduced at once, that skills are added more rapidly, and that more stimuli are provided simultaneously.

PROGRAMMED CONDITIONING FOR LANGUAGE (MONTEREY LANGUAGE PROGRAM)
by B. Gray and B. Ryan. This is a program that takes its content material from generative grammar and its delivery system from operant conditioning. The programming moves essentially from simple to complex tasks and from single-word responses to complete sentences. The goal of the program is to develop social language through the acquisition of a mini-language that teaches a child to generate new and complete sentences for himself. This program probably represents the most complex programming that has become available in a language intervention system. There are at least eight variables that are controlled and programmed, along with four stimulus models and forty-two curriculums. It is possible for each of the forty-two curriculum programs to be presented independently, and a child considered to be language impaired typically will need to go through eleven of the programs. The program has been used with

children who have language impairments of varying etiologies and children with varying levels of intelligence. Its use with trainable and educable handicapped children indicates that almost twice as many responses are required for effective learning of the programs than for children with near normal intelligence. If used with severely impaired children, five to ten times as many responses are required as with normal children.

The reinforcement schedule is varied, beginning with the 100 percent "token-paired-with-social-reinforcement" system and changing to a 10 percent token and 100 percent social reinforcement system in the later steps of each curriculum.

One of the most carefully developed parts of the program is the model presented as the stimulus for the child's response. It may be considered a prompt in some ways, but the initial model is considered immediate and complete. The child is given the entire model of what he is to say just before he is to say it. The second model is described as "delayed complete;" in this instance, the child is given the entire model, but it must be held briefly before he says the response. The "immediate truncated" is the third model, and the child is given only a portion of what he is to say in the model immediately before he says it. In the "delayed truncated" model, the child is given only a portion of what he is to say in the model, and it must be held briefly. In the "no-model" stimulus, the child is not given a model of what he

is to say. With this stimulus, the model is introduced at an early stage and then gradually faded until the child has developed the ability to generate his own sentence structure.

A specific criterion for passing each part of the program is provided. The criteria differ for group instruction and for individual instruction.

A branching procedure provides additional instructional steps to help children having difficulty on particular programs. While most children need few branching procedures, a few need a good many. This facet of the program provides a flexibility absent in some of the other instructional programs available. Guidelines are provided for making branching procedures available.

The major shortcoming of this language intervention system is its availability--it is limited to people who have completed workshop training. The procedures are carefully and completely described in the book A LANGUAGE PROGRAM FOR THE NONLANGUAGE CHILD by Burl Gray and Bruce Ryan (1973). Considerable data on the results of this program used with children are available. They indicate that the core programs are learned by children in two to seven hours of instruction time. Each child gives between three-hundred and seventeen-hundred responses in the acquisition of each program. The home carry-over section of this program helps to achieve generalization of the skills developed in the conditioning

procedures. It should be used in the classroom as well as the home. An early lack of generalization should be expected with children and should not be viewed as reason to change instructional procedures. Almost all children begin to use the language structures in appropriate situations as they develop the language skills they need.

DISTAR LANGUAGE PROGRAM by Engelmann, Osborn, and Engelmann.³

This is one of the programs with a pretest and a posttest built in as part of the procedures. The preprogram consists of fifteen lessons designed for children who have serious language deficits. Many children with mental retardation will need to have the preprogram of the first fifteen lessons as part of their language instruction. Other children will not need this section of the program and can start on the main part of the program or in the preprogram. The pretest evaluates the child's ability to produce complete statements, to understand the meaning of identification and action statements, and to produce such statements. Other language structures presented in the preprogram include "yes-no" questions, "what" questions, and "full" statements in the forms of identity, action, and negation statements.

The main part of the language program is designed so that several different concepts are covered within a thirty-minute

³The second edition of the DISTAR Language I Kit was made available in 1976.

session. Typically, five segments are involved through books A, B, and C, along with storybook and take-home materials. Each child in each group can proceed at a pace that is comfortable for him. The language structures dealt with in Book A include the following: identity statements, polar statements, prepositions, pronouns, multiple attributes, comparatives and superlatives, statements of location, and statements of same and different. Book B deals with the language structures of action statements, categories, plurals, why questions, verbs of senses, verb tenses, if-then constructions, and before-after constructions. These are all developed in a systematic way. Book C contains statements regarding "verbs," statements constructed with "or," and statements including "all," "one," and "some-all-none." Obviously, the language structures dealt with in Book C are relatively abstract and will present the most difficulty to children.

The DISTAR program was developed to teach the language skills needed to benefit from typical classroom instruction. It was developed, not as a system for teaching social language but rather, to help children learn the language of instruction. It is designed for use with small groups of children, typically three to six children in a group. Guidelines for presenting the program include: the material to be taught, the steps to be used in presenting the information, identification of correct responses, procedures for modifying incorrect responses, and procedures for assessing children's progress.

It is especially emphasized by the authors of this program that the instructional system should be followed precisely. As children learn the response patterns expected, it is possible to move very rapidly with this program; eventually, experienced users of the program learn that some children can in fact skip some steps. However, beginners are certainly encouraged to present the program precisely according to directions until they have had considerable experience with various groups of children.

GOAL: LEVEL 1 LANGUAGE DEVELOPMENT by Merle Karnes.⁴ The ILLINOIS TEST OF PSYCHOLINGUISTIC ABILITIES is typically used as a pre- and postmeasurement of change when GOAL is used for instructional purposes. This program was developed to help children acquire the language processes involved in language acquisition. Skill in language processes is considered basic in learning to read. The program covers essentially eleven language-process areas. These are: 1) auditory reception; 2) visual reception; 3) auditory association; 4) visual association; 5) verbal expression; 6) manual expression; 7) auditory-sequential memory; 8) visual-sequential memory; 9) grammatic closure; 10) auditory closure; and 11) visual closure.

⁴The GOAL Level 1 Kit is currently being revised. The new edition will also be structured around the ITPA areas but will include, under each area, developmental sequences reflecting the current information from language acquisition research. Since GOAL Level 1 was released, a new kit, GOAL Level 2, was developed by the same author. The latter kit is for older children with language delays.

There are 337 different activities available in this program. A teacher's guide contains supportive instructional materials and describes presentation of the activities. The activities are very carefully organized so that individuals may present them in a systematic manner. In some instances, criteria for determining that activities have been successfully acquired by the children are presented. In other instances, the language programmer has to determine the child's status without guidelines.

This program is best utilized with small groups of children although it can be used on an individual basis too. It is a carefully developed program based on considerable experience with children. For individuals who find the information-processing theory on which the ILLINOIS TEST OF PSYCHOLINGUISTICS is based a comfortable theoretical base for language intervention, this is an ideal program.

* * *

The language programs described herein for moderately impaired language users are typical of those available. There are other possibilities for children in this category, but ones discussed here represent a cross section of the material available. New programs are appearing on the market regularly, and it is important to monitor the publication information and the supply catalogues systematically in order to keep informed with regard to new language intervention systems.

PART III: LANGUAGE INTERVENTION SYSTEMS FOR MILD IMPAIRMENT

A discussion of five programs: Matrix Games (Gotkin), Interactive Language Development Teaching (Lee, Koenigsknecht, and Mulhern), Emerging Language (Hatten, Gorman, and Lent), Peabody Language Development Program (Dunn, Smith, and Horton), and Language Intervention: Ten Techniques (Muma)

Individuals dealing with preschoolers frequently find children who use language but use it inaccurately. These children typically make their wants known but do not seem to have the richness or the flexibility of language that is typical for their age level. In addition, they may lack experience with the effectiveness of language as a controller of the behavior of others. Such children often benefit from language instruction, but it does not need to be as carefully structured or as highly controlled as programs for children with moderate language impairment. There are a number of programs available that provide language instruction for mildly impaired children.

MATRIX GAMES by L. G. Gotkin. The curriculum represented here was developed to improve the receptive and productive language skills of four- and five-year olds from disadvantaged backgrounds. Matrix boards provide a guideline for presenting opportunities for language usage. There is a teacher's guide and an instructional packet that provide some suggestions for the teacher in utilization of the matrix boards. However, one of the strong advantages of this program is that it provides tremendous flexibility for the language clinician to meet the individual needs of children in a creative and effective way. The matrices are constructed so that there is an element of common information in each column and in each row. This allows for presentation of stimuli that vary in complexity. In the beginning simple directions can be given, and

the child's responses can be completely nonverbal. Later, the child will repeat the instruction before carrying out the nonverbal response, and later still each child can give instructions to the teacher or another child. The complexity of the instructions may vary from a one-part command to a three- or four-part command. In addition, the child may be required to attend to only one part of the direction in the beginning and later be required to attend to three or four elements of the direction and the complexity of cognitive material or concepts.

The same gradual sequencing, which is provided in terms of the child's verbal response, may be required to increase the length, complexity, and number of elements involved in a response. The child is given the opportunity to respond after only a small segment of information has been presented. The sequence of the program leads toward attending behavior in a group, comprehension of language structures, and the ability to generate directions or statements of position and identity.

The materials are large enough to be used with small groups of children. The instruction could be provided on an individual basis but seems to be more effective in groups of two to six children. The materials are colorful and children have been very responsive to them. The major weakness of the program is that a criterion is not provided for determining when tasks have been learned. In addition, the materials are heavy and difficult to transport.

The curriculum of the matrix games consists of prepositions, verbs, plurals, colors, size and shape, and question and negation forms.

The Gotkin MATRIX GAMES have not been as widely used as some of the other language intervention systems, but they do provide considerable information that is attractive to preschool-aged children. The programming has been carefully done so that the sequence of steps is appropriate, and the steps are small enough for most children to be successful. It is not considered an ideal program for children with really severe language deficits.

INTERACTIVE LANGUAGE DEVELOPMENT TEACHING by Laura Lee, R. Koenigsknecht, and S. Mulhern. The language intervention system described in this book is based on developmental sentence analysis. The system of analysis is based on generative grammar and psycholinguistic approaches to language development. Eight parameters of language were chosen for analysis, and they consist of 1) indefinite pronoun or noun modifiers, 2) personal pronouns, 3) main verbs, 4) secondary verbs, 5) negatives, 6) conjunctions, 7) interrogative reversals, and 8) "wh" questions. Each category of language has been analyzed according to developmental levels and, in some instances, assumed complexity. The language clinician is responsible for developing procedures to help children acquire the skills that are missing. This allows considerable creativity on the part of the language clinician but also provides for the possibility that poor programming

will occur. The guidelines for task analysis are weak, and there is no criterion to determine when a child has actually acquired a given skill. The analysis is based on a language sample obtained in response to verbal and pictorial* stimuli. Because standardized procedures for collecting language samples are not yet agreed upon, the manner in which they are obtained may differ considerably from one language clinician to another. Therefore, the use of such samples as a foundation for the development of a language instructional system is problematic. However, in the hands of skilled clinicians or people who have carefully studied the book and attended workshops for specific training, this represents both an efficient and an effective language intervention system. The developmental sentence analysis is probably as effective in terms of measuring changes that do occur with language instruction as any technique available. It is important for the language clinician to learn to be consistent with judgments and scoring procedures. This can be accomplished by recording a language sample, transcribing it, and scoring it on two or three separate occasions without reference to the first scoring. If the same scores are obtained, then it is apparent that the clinician is consistent with previous judgments. It is more difficult to obtain consistency between two or three different clinicians.

EMERGING LANGUAGE, by John Hatten, Tracy Gorman, and Carole Lent.⁵ This book describes behavioral objectives for language

⁵A revised version, EMERGING LANGUAGE 2, is now available.

instruction beginning at the one-word level and continuing through the development of kernel sentences and early transformations. The book contains lesson plans developed by the authors for language remediation beginning at the child's level of performance and proceeding in systematic steps. It is based on developmental sentence analysis, and the sequence the user selects is designed to introduce the child to various transformations that are part of the generative grammar approach to language development. It is designed for use with children between the ages of two and ten years who have not acquired language. The authors have established some criteria that the child must verbally satisfy in order to move to the next set of activities. This language approach is considered more informal than some, because it allows activities to be constructed in the interest of individual children. The authors also encourage the use of noun-action combinations early in the instructional program. It is difficult for some language clinicians to accept this fragmentary "car-go" phrase as an early, appropriate language utterance. However, young children do use sentence fragments to represent complete ideas. Therefore, it may be logical to approach language remediation from the "car-go" phrase point of view.

The strengths of this program are the flexibility, the open programming, the developmental sequence of language skills in each of the eight categories, and the systematic approach to

instruction for each category. The weaknesses are related to its dependence on the knowledge and skill of the language clinician using it and the lack of criterion to determine acquisition of skills. There is no reinforcement schedule described, although clinicians using it have frequently provided their own. This may be used in developing interactive language therapy activities.

Informal Language Programming

This approach to language intervention is typically preferred by most language clinicians who feel that they can utilize information on language development, language acquisition, and developmental norms to build their own language intervention techniques or programs. Indeed, some clinicians interact informally quite well with children who demonstrate much improvement in language usage during intervention programs. Care should be exercised to meet the language needs of the child and not the clinician. It is helpful to keep some type of record on accurate responses. Analysis of language samples can be used to document change as a pre- and postintervention measure.

THE PEABODY LANGUAGE DEVELOPMENT PROGRAM by L. Dunn, J. O. Smith and K. Horton. Many people consider the PEABODY to be a good example of informal language programming. Although there is a specific structure and a specific system to the presentation of materials, the program does leave opportunities for the language clinician to present the language activities in the way most appropriate for each group of children. It begins with labeling

activities and moves to the grammatical structure of language and then to logical thinking and the production of appropriate language structures. A manual describes 180 daily lesson plans that have explicit instructions for presenting the activities. However, the manual encourages teachers to present activities in ways that are best suited to the children, their interests, and the interests of the language clinician. Word association skills and sentence building are two of the major activities in this type of language program.

In assessing the feasibility and efficiency of language programs, it is important to relate the amount of talk time by the language clinician to the amount of talk time used by the children. It is not unusual to find clinicians, who use informal programming, taking most of the talk time in a session and leaving little for the child. One of the dangers of informal programming is that it does not limit the verbalizations of language clinicians.

"LANGUAGE INTERVENTION: TEN TECHNIQUES" by John Muma.

Muma presents ten techniques--five child-initiated and five teacher-initiated--for modifying the language of children. The child-initiated techniques will be discussed first.

The "correction model" is probably the most frequently utilized and probably the least effective in changing language usage by children. The child's errors are identified and corrected immediately by completion and modeling from the adult. Errors of

reference are also identified and corrected so that the language instructor deals with the semantics of the language. Another technique is "expansion." In this instance, the child's utterance is retained but is completed according to adequate sentence structure and the available referents. Some additional information is provided and the child is encouraged to incorporate that information into additional utterances. The third child-initiated technique is "expatiation." In this instance, the structure is maintained and additional ideation is provided. The semantic aspects are maintained, but syntax is not necessarily retained as the child originally presented it. In the fourth technique, "complex expatiation," the semantic aspects are retained and featured, but they are diffused into more complicated syntactic structures. The syntax may be modified and new ideational information provided. This technique helps the child learn to deal with the utterance as the locus of communication. The fifth child-initiated technique is the "alternative model." The child makes a statement and then the adult makes a response that includes two alternatives both of which are acceptable. This is one of the best techniques for developing the logical assumptions underlying an utterance and for teaching the child that things can be said in more ways than one.

In addition to the child-initiated models, there are five teacher-initiated models. These techniques are ideal for short

instructional units. The teacher can offer the model and allow time for the child to respond on a number of occasions throughout the educational day. In addition, these techniques can be used in group instructional situations by language clinicians.

The first teacher-initiated model is called "completion." It consists of providing all of a sentence except one word and asking the child to fill in that unit. The completion model may be used for noun phrases, verb phrases, and modifying phrases such as prepositional phrases, or it may be used as a means of developing cognitive structures. If it is used with picture stimuli, it can be used in such a way that the child has to find as many ways as possible to complete a sentence. This requires imagination, dealing with conceptual materials not depicted in the picture, and organizing them in a meaningful way. It is apparent that the completion model deals with grammatical and conceptual issues.

The second technique that is teacher-initiated involves a "replacement model." This requires the child to replace a part of the sentence with another appropriate unit. This technique deals primarily with constituent analysis and the equivalent of phrases and clauses. It also deals with grammatical and conceptual issues.

The "alternative replacement model" is a combination of the alternative and replacement models. It allows exploration of morphology, and it allows the child to deal with constituent

analysis and an alternative strategy. It is an excellent technique for children who have fairly adequate language but who need to develop more flexibility and who need to recognize different ways of saying the same thing.

The fourth teacher-initiated model is "revision," and this allows exploration of alternatives in more depth than the alternative replacement model. It deals with generalization and organization of concepts and may allow the child to revise ideation related to a specific stimuli.

The last teacher-initiated model is called "combination," and this is another way of exploring alternatives. It requires the child to take two complete sentences and combine them into one complete sentence. It requires an ability to generalize and reorganize information and is not appropriate for children who are having difficulty dealing with basic structures of language. These techniques may be used in both the oral language forms and written language forms.

One of the primary advantages of the techniques described by Muma is their reliance upon the present performance levels of children to indicate the appropriate language activity. In the child-initiated models in particular, the teacher or language clinician simply responds to the child's utterances in a way that emphasizes certain structures and factors in the child's production of language. In the teacher-initiated models, it is easy to listen

to the child's verbal output and organize a model stimulus that will provide opportunities to practice the structures being learned or to develop structures just ahead of the child's present usage. The use of these techniques requires extensive knowledge of language and the transformations related to generative grammar, and it also requires that the language clinician have an ability to respond quickly. It is very easy to present a model to the child that is too advanced and too complicated for him to follow. When this occurs, it encourages error responses on the part of the child, and if too many of these occur it is discouraging to a child in language-learning activities.

CLOSING REMARKS

A discussion of language development in terms of one's ability to use increasingly difficult linguistic units—beginning with phonemes and ending with language system

The analysis and modification of a child's language can be approached from several directions. It can become as complicated or as simple as the investigator has the background and knowledge to make it. Regardless of the analysis or the modification of intervention systems, it is important to remember that language is composed of sets of functional relationships. As described by Dever and Bauman (1974), the sets of functional relationships in language may be considered layered. Analysis can be made of language at any layer individually or as a specific layer interacts with other layers. The most basic level may be considered phonemes, since these are the basic units that develop into meaningful words. A second level might be considered morphemes. These are best described as the markers of a language system that allow for functional relationships. Examples of morpheme markers are the use of s and z for pluralization, the use of 's for possession, or the use of ed to form a regular past tense. Above the morpheme level is the word level, and this has been highly investigated in terms of vocabulary acquisition and size of vocabulary. The next level would be the phrase level which consists of the development of noun and verb phrases; it is now apparent that some children proceed to develop complex noun phrases before they do much in terms of using verb phrases. The phrase-level analysis may allow for fine discrimination between levels of development; it is just beginning to be explored. The clause level of language usage has been

investigated by Dever and Bauman (1974) and promises to provide information on children's language that has not yet reached the sentence level. It will allow for classification of utterances in specific ways along a developmental continuum. It may eventually result in specific stages of clausal development, but at the present time it basically provides descriptive information about language patterns that children are using. The next level of analysis and instruction is the sentence level. It allows for more extensive evaluation of language usage at age levels higher than are typically investigated. It is apparent from recent works by Chomsky (1965), Kessell (1970), and Hunt (1970) that language development continues in third- and fourth-grade children. Their ability to deal with written language and their ability to modify verbal language is certainly apparent if we look at analysis at the sentence level. The combination of clauses into more complex sentences is probably the best method of analysis. Discourse concerns the combination of sentences to express an idea from its beginning to a logical conclusion. Discourse, therefore, may consist of a paragraph or several minutes of verbal dialogue, or it may consist of several pages of written material. The language system is the most complex and the highest level at which analysis can be developed, and this relates to the efficiency with which an individual uses a language system. Very little analysis has been done at this level, and it is unlikely that it would ever be needed for preschool children.

The development of language is by far the most complex and challenging area of child development. Little is known about the manner in which most of the population acquires and uses language efficiently. It has been assumed that children with lower intelligence levels experience more difficulty learning language and that, indeed, some of them were incapable of learning it. More recent research by Guess, Sailor, and Baer (1974) has indicated that even severely retarded children can learn language functions and language usage if provided with enough instructional trials over a long enough period of time. They report taking as long as two years to establish verbal responses that required two to three thousand instructional trials. After these initial language responses were established in the severely retarded child, the next language responses were learned with fewer trials and less time. Clearly, much more remains to be learned with regard to language development, usage, and learning

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PURCHASE INFORMATION

The following list contains current (July 1, 1978) price and publisher address information on each of the language programs reviewed in this book. Please contact the publisher directly for further information on the programs.

SEVERE LANGUAGE IMPAIRMENTS

Louise R. Kent (1974)
LANGUAGE ACQUISITION PROGRAM FOR THE RETARDED OR MULTIPLY
IMPAIRED
Research Press
Box 3177
Champaign, IL 61820
\$6.95
(217) 352-3273

William Bricker and Diane Bricker (1974)
"An Early Language Training Strategy" in R. L. Schiefelbusch and
L. L. Lloyd, LANGUAGE PERSPECTIVES: ACQUISITION, INTERVENTION,
AND RETARDATION
University Park Press
Chamber of Commerce Building
Baltimore, MD 21202
\$16.50
(301) 547-0700

J. W. Tawney and L. W. Hipsher (1972)
SYSTEMATIC LANGUAGE INSTRUCTION
Interstate Printers
19-27 N. Jackson
Danville, IL 61832
\$3.95
(217) 446-0500

MODERATE LANGUAGE IMPAIRMENTS

Burl B. Gray and Bruce P. Ryan (1973)
A LANGUAGE PROGRAM FOR THE NONLANGUAGE CHILD
Research Press
Box 31778
Champaign, IL 61820
\$6.95
(217) 352-3273

S. Engelmann, J. Osborn, and T. Engelmann (1976)
DISTAR LANGUAGE I, Second Edition
Science Research Associates, Inc.
155 N. Wacker Drive
Chicago, IL 60606
\$140.00
(312) 984-2000

Merle B. Karnes (1972)
GOAL-LEVEL I
Milton Bradley Company
East Long Meadow, MA 01101
\$140.00
(413) 525-6411

MILD LANGUAGE IMPAIRMENTS

L. G. Gotkin (1967)
MATRIX GAMES
New Century Education Corporation
275 Old New Brunswick Road
Piscataway, NJ 08854
No Longer Produced (Cannot be Ordered)
(201) 981-0820

L. L. Lee, R. A. Koenigsknecht, and S. Mulhern (1975)
INTERACTIVE LANGUAGE DEVELOPMENT TEACHING
Northwestern University Press
1735 Benson Avenue
Evanston, IL 60201
\$15.00
(312) 492-5313

John Hatten, Tracy Gorman, and Carole Lent (1976)
EMERGING LANGUAGE 2
Communication Skill Builders, Inc.
817 E. Broadway
P. O. Box 6081-D
Tuscon, AZ 85733
\$5.95
(602) 882-9034

Lloyd Dunn, J. O. Smith, and Kay Horton (1968)
PEABODY LANGUAGE DEVELOPMENT KIT-LEVEL P
American Guidance Service, Inc.
Publisher's Building
Circle Pines, MN 55014
\$192.00
(612) 786-4343

John Muma (1971)
"Language Intervention: Ten Techniques" in LANGUAGE, SPEECH,
AND HEARING IN THE SCHOOLS, Volume 2
American Speech and Hearing Association
10801 Rockville Pike
Rockville, MD 20852
Free (quantities are very limited)
(301) 897-5700